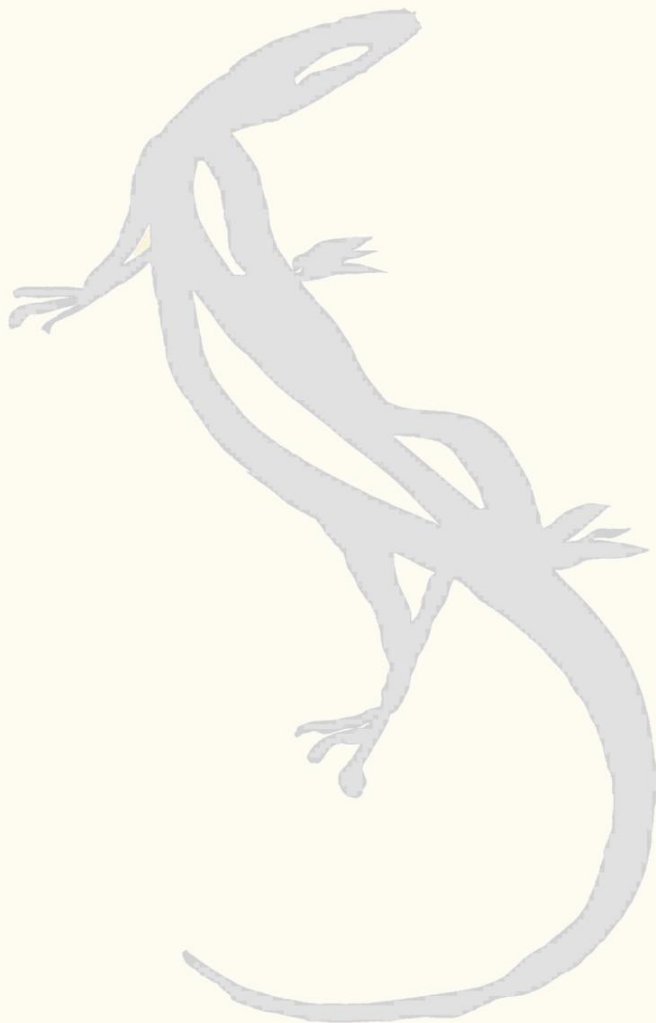


BARBARA PRESTON RESEARCH

**Nursing and nursing-related
workforces to 2020:
data, projections, scenarios & issues**

A report prepared for the Australian Nursing Federation

April 2010



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21 April 2010

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1. Introduction

There are substantial shortages of nurses throughout Australia, and there do not appear to be any easy solutions. This report is intended to provide information and analysis to inform effective strategies to overcome or ameliorate those shortages over the coming decade, while ensuring high levels of nursing care and public safety.

The report brings together data regarding nursing and related occupations from a range of sources, covering the numbers in the various occupations, their post-school qualifications in Nursing, and their age profiles. Data is also provided on the 'attachment' to their occupations of those with a highest post-school qualification in the 'field of education' (FOE) of Nursing (pre-registration and pre-enrolment), and international movements of professional nurses (by age and type of movement). Detailed data is provided in the Statistical Annex, pages 16 to 28.

Drawing on this and other information, workforce projections to the year 2010 have been prepared for registered and enrolled nurses. A standard projection for RNs is provided in detail (Table A.20 in the Statistical Annex), and the summary outcomes of several different scenarios are discussed and tabulated in the main report (Section 4.1 and Table 2). Projections for ENs are discussed in Section 4.2.

2. Nursing and related occupations

This report is concerned with the circumstances and prospects of nursing and related occupations. The regulated and well-recognised nursing occupations are registered nurses (RNs), registered midwives (RMs)¹ and enrolled nurses (ENs). In addition, occupations that come within the classification of 'Nursing Support & Personal Care Workers', which includes assistants in nursing (AINs) and personal care workers, usually undertake substantial nursing work, and 18% of those working in occupations so classified were reported in 2006 Australian Bureau of Statistics (ABS) Census data as having a highest post-school qualification in the FOE of Nursing (Table A.1 in the Statistical Annex, page 22). In addition, many workers in other related occupations undertake at least some nursing work, and many have post-school qualifications in Nursing.

National, official data sources are relied on in this report. These use standard classifications of occupations (Australian and New Zealand Standard Classification of Occupations, ANZSCO) and qualifications (field of education, or FOE, and level in the Australian Standard Classification of Education, ASCED). The occupation classifications appear clear regarding the regulated professions, but even there a registered RN or EN may be employed in a position that is differently classified, especially if employed outside mainstream health authorities. In addition, an individual responding to a questionnaire as part of the data collections of the Australian Institute of Health and Welfare (AIHW), Australian Bureau of Statistics (ABS) Census or ABS Labour

¹ Midwifery is a profession distinct from nursing. However, 95% of registered midwives (RMs) are also registered nurses (RNs), and those RMs who are not also RNs make up only 1% of all registered nurses and midwives (AIHW 2009, pp. 7-8). In addition, many major data sources do not distinguish between RNs and RMs, or, if they do (such as ABS Census and Labour Force ANZSCO-coded data at the four digit level), there is no classification for those with dual registration, and thus in the RM category there is no indication how many, or who (by age or geographic location, say) have just RM registration or dual registration, and similarly for those with dual registration who are classified in the RN category (or another category such as nurse educators or nurse managers). Therefore the terms 'professional nurses' or 'RNs' are used in this paper, and include both RNs and RMs.

Force may respond in a way that is coded differently from the way their position is classified by their employer. Such problems are greater for the un-regulated nursing-related occupations.

The qualification classifications only allow for highest qualification, and thus an RN with a masters in the FOE of Public Health will be classified as having a highest qualification in that field, not ‘Nursing’. The level of education classification is especially problematic for those qualified some years ago who have not formally upgraded, and thus may be registered as RNs but classified as only educated to diploma level.

It is not a simple matter to determine how many individuals are employed in each of the relevant occupations. The AIHW is considered to have the most accurate data for the regulated health professions (RNs, RMs and ENs), but provides no information about the occupations that are not regulated. The ABS Census and ABS Labour Force Surveys cover both the regulated and unregulated occupations, but appear to very substantially undercount ENs, and it is not clear whether the unregulated occupations are reasonably enumerated, undercounted or over-counted. These problems are discussed in Box 1 (page 13).

The best estimates for the numbers employed in the major occupations, and information about the percentages with highest post-school qualifications in Nursing are set out below. Detail is provided in Table A.2, page 23. Job prospects (according to the Australian Government Job Outlook website, <http://joboutlook.gov.au/pages/alpha.aspx>, 7 April 2010) for the nursing occupations are ‘good’, and employment for Nursing Support and Personal Care Workers to 2014-15 is expected to ‘grow very strongly’. These descriptions indicate at least some level of shortage, and the expected growth for Nursing Support and Personal Care Workers perhaps indicating a level of substitution for ENs (and, consequently, of ENs for RNs).

- **Registered nurses** - 212,000 (AIHW 2007), 86% with *highest* post-school qualification in Nursing (ABS Census 2006) (100% would have an appropriate qualification in Nursing).
- **Enrolled nurses** - 51,000 (AIHW 2007), 82% with *highest* post-school qualification in Nursing (ABS Census 2006) (100% would have an appropriate qualification in Nursing)
- **Nursing support and personal care workers** - 77,000 (ABS Labour Force 2009), 18% with *highest* post-school qualification in Nursing (ABS Census 2006) (additional unknown % would have a qualification in Nursing)
- **Other nursing-related occupations** - 118,000 (ABS Labour Force 2009), 7% with *highest* post-school qualification in Nursing (ABS Census 2006) (additional unknown % would have a qualification in Nursing).

The number of registered nurses has steadily increased since 1990, while the number of enrolled nurses fell for a decade, and has since rebounded (Table 1). The number of RNs has increased from 63,821 in 1961 and 106,565 in 1981 (AIHW 2000, Table 5.16), to 212,342 in 2007.

Table 1. Employed registered and enrolled nurses, number in 1990, 1999 and 2007

	1990	1999	2007
Registered nurses	154,000	167,000	212,000
Enrolled nurses	45,000	29,000	51,000

Source: AIHW 2001, p. 31, and AIHW 2009, p. 9.
 Figures rounded to ‘000.

3. Workforce projections to 2020

Projecting workforces over a period of ten years requires estimates of:

- The total size of that workforce through the period (FTE and persons). From this can be calculated the number of additional workers required for 'growth' (if the total workforce is projected to decline, then the 'growth' figure is negative).
- The net numbers leaving the workforce (net separations) and thus requiring 'replacement'.
- Net arrivals into the jurisdiction who are available and suitable for positions and who thus contribute to the supply of new recruits to meet 'growth' and 'replacement' needs.
- The number of recent graduates who are available and suitable for positions.
- Any accumulating shortages or surpluses.

These are the main variables, some have degrees of complexity (or could be separated into sub-variables) that will not be taken up in this report.

The projections shown and discussed in this report are only broadly indicative, and the limitations of data and assumptions, and the uncertainty about the future should be recognised.

The data and assumptions for each of the main variables are now considered in turn, with discussion of the outcomes of variation in the assumptions according to different scenarios.

3.1 Projecting staffing levels

Projected total nursing workforce levels (full time equivalent, FTE) are determined by the staffing level (FTE nurses per 100,000 population) and the population. Between 2010 and 2020 the medium ABS population projection (Series B) is for an increase of 15% in the total Australian population. The projected increases for the older age ranges are greater: 47.2% for the 65-74 age range, 33.2% for the 75-84 age range, and 36.4% for the 85 and over age range (Table A.3, page 24).

These older age ranges require higher levels of staffing by nurses (other things being equal). An estimate of the magnitude of these higher levels of staffing for RNs was developed by the author from AIHW data (Preston 2006, pp. 77-92). Compared with the staffing levels required by the 0-64 age range, the 65-74 age range requires around three times, the 75-84 age range requires around six times, and the 85 and over age range requires around eleven times. The application of these differential requirements (a 'population age profile factor', or PAPF) to the ABS population projections (Table A.4, page 24) results in an increase in requirements for RNs of 23.3% (maintaining 2007 staffing levels for each age range). The increase in requirements for ENs is likely to be even greater because a much higher proportion of ENs work in aged care (24% of ENs work in residential aged care, compared with 9% of RNs – see Table A.5).² However, a separate PAPF has not been developed for ENs, so the RN PAPF is used for the EN projections.

² There has been a substantial decrease in the number of RNs and ENs working in residential aged care between 1995 and 2007 (there is a difference according to data sources for ENs between 2003 and 2007), and, over the period 2003 and 2007 an increase in personal carers (Tables A.6 and A7). However, the minimum safe staffing levels for RNs and ENs in residential aged care may have been reached. The projected increase in RN requirements because of the impact of population ageing on hospitals will have a greater impact than any impact on residential aged care because of the much higher proportion of RNs (and, to a lesser extent, ENs) working in hospitals (Table A.5 and Preston 2006, pp. 87-88).

If staffing levels are assumed to vary from recent levels, then the additional numbers required for 'growth' would vary. Recent staffing levels existed in a situation of overall shortage, with substantial variation between the states (Table A.8, page 18). While the national FTE RNs per 100,000 was 891 in 2007, in NSW it was just 847, while in Victoria 949 and South Australia 986. The main projections in this report are based on a continuation of the 891 staffing level. However, if the level is progressively increased to 950 by 2010, and all other variables kept at a level that result in reasonable balance by 2010 at the 891 staffing level (as in Table A.20, page 28), then a shortfall of around 10,000 nurses (nearly 4% of the total workforce) develops within 5 years.

3.2 Estimating future net separation rates

The projected net separation rate applied to the number in the workforce determines the number of new recruits required for 'replacement'.

There are two key variables in estimating future net separation rates (net separation rates include re-entrants as well as those leaving the occupation, and those who move from one employer to another are netted out).

First, the underlying 'attachment' to the occupation at each age level needs to be calculated (or estimated), with the change from one age to the next indicating the net separation rate for that age. The general pattern is for young workers and those newly qualified to have high net separation, followed by low net separation through the mid career decades, then high rates as retirements occur. Once the net separation rates for each age have been estimated, then the age profiles need to be projected. Bringing the two together allows for the net separation rates for the workforce as a whole to be estimated for each year over the projections period. Thus, if there are increasing proportions of the workforce in the higher separation younger and older age ranges, then the net separation rates will increase. For RNs this occurs until around 2015, when the projected rate remains stable at a relatively high rate as a consequence of expected large numbers of retirements and of departures among the increasing proportion of younger nurses.

There will be other factors affecting separation rates, such as changes in alternative opportunities, changes in policies and practices affecting retention or retirement, and so on. However, these matters are assumed to be unchanged in the standard projections in this report.

3.2.1 'Attachment' to the occupation

Attachment at each age can be estimated for RNs from ABS Census data, but is much more difficult for ENs and nursing-related occupations. One of the reasons for this is that the majority of newly qualified RNs are young (their 20s), while only around a third of newly qualified ENs are in their 20s (Figure 3). The method used here applies most effectively when most of the workforce commence around the same age.

Figure 1 shows that overall RNs have a high 'attachment', but this varies by age. The net separation rate is indicated by the *slope* of the curve of those appropriately qualified who are actively employed in the occupation, and not the actual percentage.

A very high proportion of those in their early to mid 20s (who would have been recently qualified) are working as RNs. The percentage declines (thus there is a relatively high net separation rate) until the early 30s age range. Then there is little change (a net separation rate close to zero) until the late 40s. The rate is then high and fairly constant from the early 50s to mid 60s age range, then increases further.

Table A.9 (page 18) summarises the data in Figure 1. Table A.10 (page 19) provides similar data for the percentage of those with a highest qualification of Certificate IV in Nursing who are working as ENs by five year age range. While around 70% of those with a highest qualification of

a professional qualification in Nursing are working as RNs through most of their working lives, only around 25% with a highest qualification of Certificate IV in Nursing are working as ENs.

A high level of ‘attachment’ implies that there are relatively few qualified individuals who are not working in their ‘home’ occupation who can be enticed to return (or enter for the first time). This has been illustrated by the Commonwealth Department of Health and Ageing’s ‘Bringing Nurses Back into the Workforce’ (BNBW) program. The program commenced in January 2008 with nearly \$40million to attract 8,750 nurses and midwives back into hospitals and aged care over five years (<http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-mailfax-2009-0304.htm>). According to a Government response to a Senate Question on Notice, only 366 nurses had returned under the program in 2008, and the rate in 2009 to April was proportionally even lower (Question No. 2467, 4 February 2010). This indicates only around 20% the expected number of participants in the program, and it is quite possible that many of those who have participated would have returned to nursing anyway – even if not at the same time or to the same position. The apparent lack of success of the program is not surprising, given the high rate of ‘attachment’ of RNs to their profession.

Figure 1. Percentage of those with professional qualifications in nursing or midwifery as their highest qualification at each age who are working as registered nurses or midwives, working in other occupations or not working, Australia 2006



Source: ABS 2006 Census custom tables

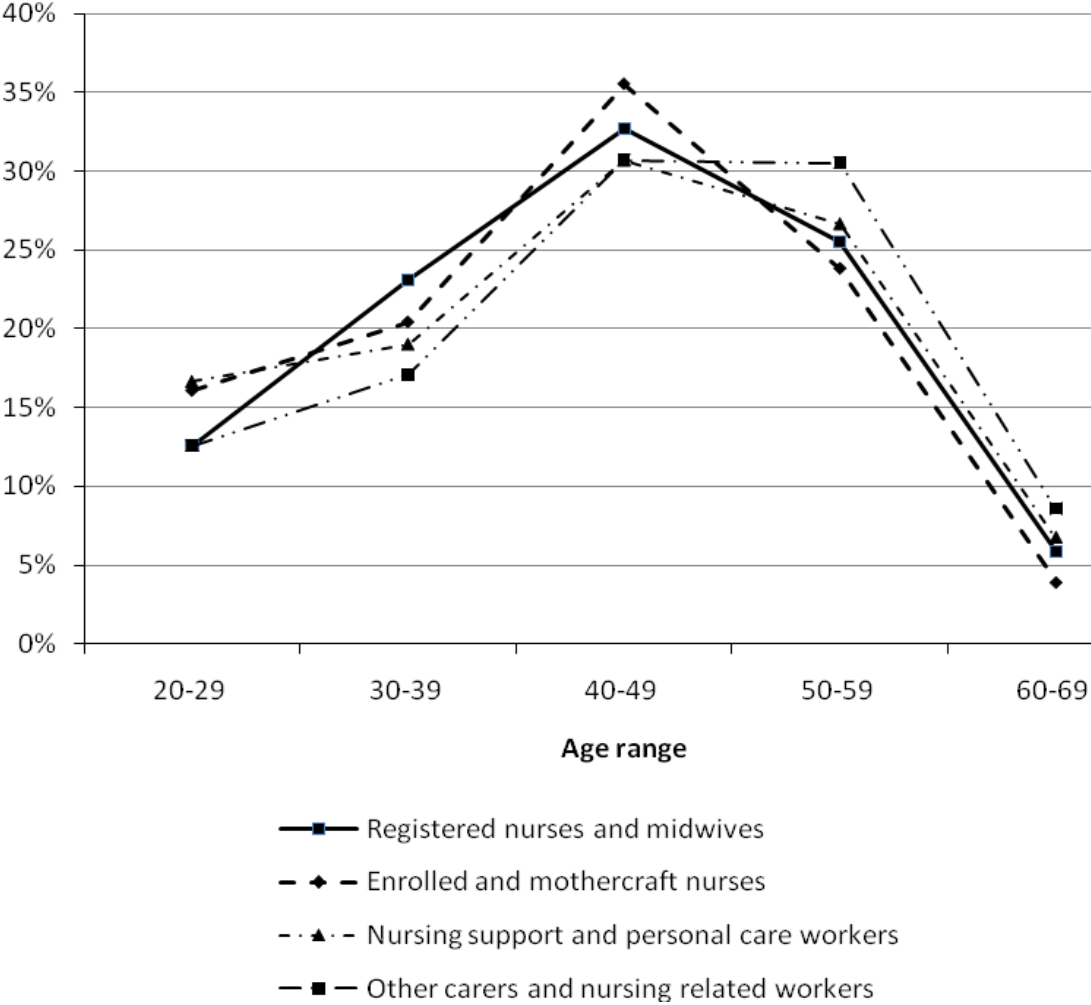
3.2.2 Age profiles of nursing and related occupations

The nursing and related occupations all have age profiles with a significant peak in the 40s age range. This contrasts with the late 1980s, when, in 1987, the peak was in the 25 to 34 age range, with 34% of nursing workers (regulated nurses plus ‘personal care and nursing assistants’), and 54% were aged under 35 (Shah & Burke 2002, p. 21). RNs had a slightly more pronounced peak

than nurses as a whole – 36% were in the 25 to 34 age range, and 55% were aged under 35 (Shah & Burke 2002, p. 31).

The current peak is particularly pronounced for ENs, more than 35% of whom are aged within the decade 40 to 49 (and the decade 45 to 54). Figure 2 shows the age profiles in 2006 (based on ABS Census data) for RNs, ENs, nursing support and personal care workers, and other carers and nursing related workers.

Figure 2. Age profiles of nursing and related occupations, 2006



Source: ABS 2006 Census TableBuilder

Table A.11 (page 19) contains the data for Figure 2, and Table A.12 (page 19) provides data on the age profiles of RNs and ENs from three different sources (ABS Census 2006, AIHW 2007 and ABS Labour Force 2009). The three datasets are very similar. They each indicate the older age profile of ENs. If the datasets for the three consecutive years from the three sources are accurate, they would also indicate an increasing proportion of younger RNs, and a decreasing proportion of younger ENs over the period from 2006 to 2009. For ENs, this is consistent with the increasing number of completions between 2005 and 2008 (Table A.13, page 20)) – a period of exceptionally large increases of around 15%, or 900 additional graduates each year, most of whom would be aged under 30, and a high proportion of whom would enter the RN workforce the following year. In contrast, the increase in Certificate IV and VET diploma or higher completions has been less than 6% a year, and a much higher proportion are aged more than 30.

3.2.3 Conclusions on net separation rates

From the information on attachment and age profiles, estimates of net separation rates for RNs increase from 3.9% in 2011 to 4.8% in 2015, a rate that remains constant through the rest of the period while retirements are at a high level. (These projections are broadly estimated, not precisely calculated.) The rate estimated for ENs is double that for RNs.

If separations are around one percentage point higher for RNs through the period, then, in a scenario that would otherwise arrive close to balance (Table A.20, page 28)) shortages develop to over 10,000 – nearly 5% of the total workforce. The RN net separation rates used for the projections in Table A.20 are almost impossible to get any lower (if reduced by special initiatives for a year or so, higher rates are almost certain to follow), therefore no scenarios with lower rates have been prepared.

3.3 Sources of new recruits to the nursing workforce

There are two main sources of new recruits to the national nursing workforce: graduates of pre-registration education programs (for RNs and ENs) and net overseas arrivals. The model for determining the demand for and supply of graduates used in this report incorporates net overseas arrivals as one of the variables in determining demand for graduates. However, they could be differently placed in an equivalent model.

3.3.1 Course completions

In the early 1990s pre-registration course completions were over 7,000. The numbers declined to around 5,000 in the late 1990s before increasing. Between 2001 and 2008 completions increased by 68%, from 5,222 to 8,786, an average of nearly 10% per year. A large part of this increase was from international students – domestic students only increased by 41%. See Table A.13 (page 20) for details.

However, that rate of increase is currently unsustainable. Commencements increased by only 1.2% from 2007 to 2008 (domestic student commencements increased by only 0.2%). (More recent data is not available.)

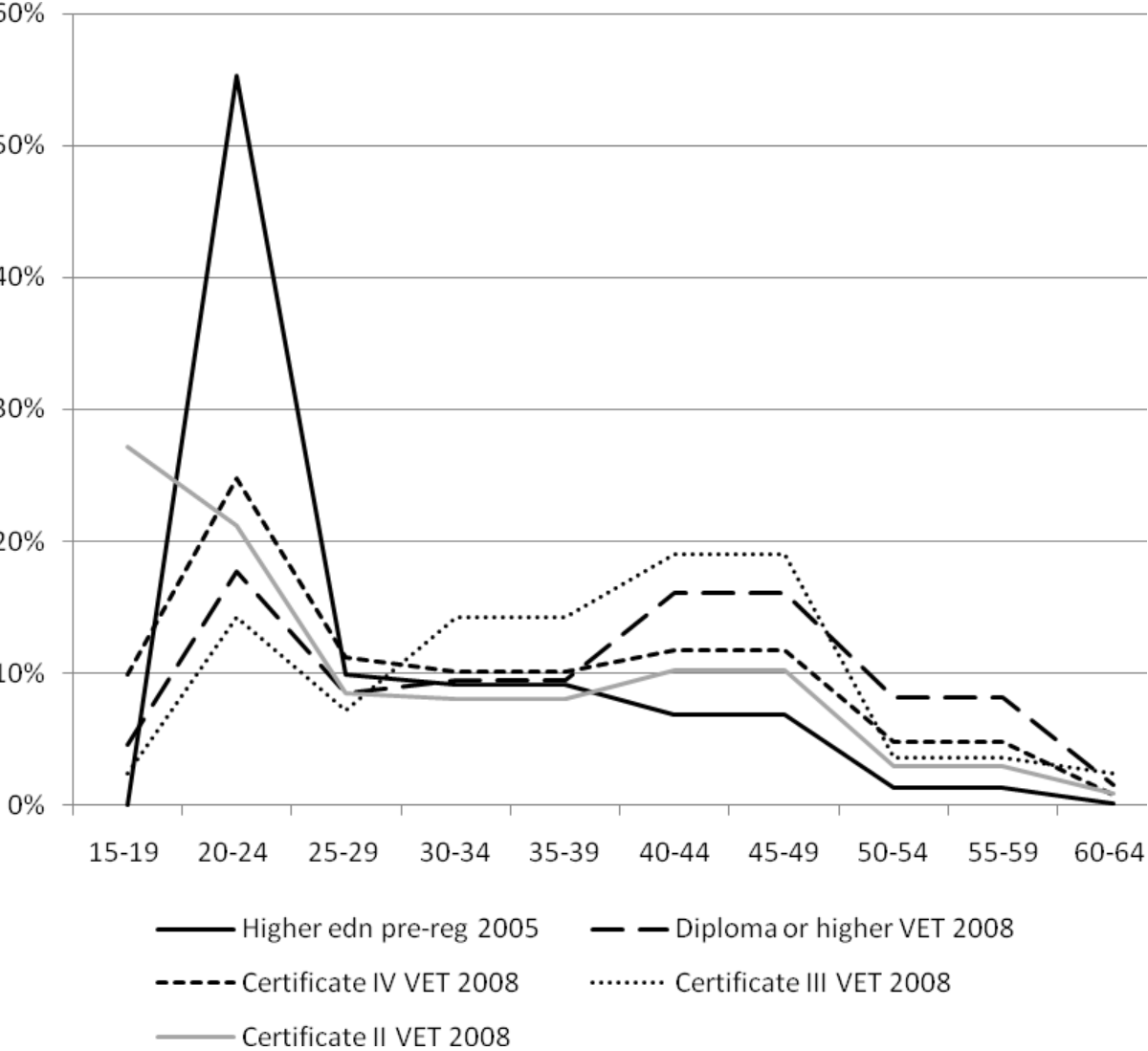
There are a number of limitations on any substantial expansion of commencements and thus graduate numbers in the near future. These limitations include the difficulty in obtaining a sufficient number of clinical places, and the developing shortage of appropriately qualified academics. There is also fragility in student demand. For Australian residents this is especially so among school leavers with tertiary entrance scores above 90 (DEEWR 2009, Appendix Tables A& and A16). International students, who have provided most of the growth in the past, might be increasingly attracted to universities in the UK and the US which can provide value for money in the context of the high Australian dollar.

The detailed projections scenario in this report (Tables A.20, page 28) project most variables with ‘medium’ assumptions based on recent actual levels. However, completions are projected to increase between 2010 and 2020 by an annual rate of 6%, estimated as around the upper range of reasonable possibility. Consequently the current shortfalls reduce to close to balance by 2020. If completions increase by 3% a year, a reasonable assumption without concerted intervention, shortfalls increase over the period to around 10,000 or 3.6% of the workforce..

Course completions in Certificate IV and vocational educational and training diplomas or higher have also increased between 2002 and 2008, as have Certificate II completions, though Certificate III completions have reduced. Together, the Certificate III and IV and diploma or higher completions increased by 72% or 12% a year, to a total of 4,069 (Table A.14, page 20). However, around 900 ENs enter pre-registration programs in universities (CDNM 2007, p. 4), often immediately or soon after completing the EN qualifying course. (These are accounted for in this

report as separations from the EN workforce, rather than reducing the number of completions of Cert IV or diploma courses in Nursing.)

Figure 3. Age profiles of completions in the FOE of Nursing, higher education pre-registration, 2005, and vocational education and training, by level of qualification, 2008



Source: NCVET VOCSTATS, tables created 1 April 2010; DEEWR higher education aggregated dataset, downloaded 2007.
 Note: Data is only available by 10 year age ranges between 30 and 59, so the values were halved for the 5 year age ranges between 30 and 59 so that clearer comparisons could be made with the 5 year ranges from 15 to 29 and 60 to 64.

The number of completions as a percentage of the total workforce is the ‘training rate’, which in 2007 for RNs was 7% and ENs 6.0% (Table A.16, page 21). While the RN rate may be too low for sustainability, the higher rate for ENs may also be too low for sustainability because of the much lower ‘attachment’ of ENs (thus a higher net separation rate) and the older age of those who complete. While more than half of those who complete a pre-registration program are aged under 25, only around 35% of Certificate IV completers are aged under 25. Figure 3 shows the age profiles of those who complete the various Nursing courses.

3.3.2 Net overseas arrivals

Data on net overseas arrivals of nursing professionals is available for the Department of Immigration and Citizenship (DIAC) by age and type of movement (permanent or long term). This data is set out in Table A.17, page 21.

Those aged 25 to 29 have the greatest rate of movement in all but the permanent movements (those in their 30s are more likely to be permanent settlers or resident permanent departures). There is not double counting of international student graduates or of resident recent graduates who depart.

The projections model incorporates 80% of the 2008 level of 3,760 net arrivals, recognising that not all of those nursing professionals who arrive (or depart) will be available (or suitable) for actual nursing positions. This includes those arrivals who are qualified in their home county, but undertake a pre-registration program to ensure adequate levels of nursing competence in Australia and English language, and thus, if successful, are counted as 'graduate supply'. Others may enter other occupations or not work at all.

The Australian National Health Workforce Strategic Framework, endorsed by the Council of Australian Governments (COAG) on 10 February 2006, calls for 'national self-sufficiency in health workforce supply, while acknowledging that Australia is part of a global market' (this does not preclude high levels of movement of RNs in and out of Australia, only that departures become roughly equal to arrivals). (For a discussion of the complex issues involved in 'self-sufficiency' globally see Little & Buchan (2007).)

The standard projection and most scenarios in this report are based on a continuation of 2008 net arrivals and assumed availability and suitability of around 80%, resulting in a figure of 3,000. However, if the level is progressively decreased to net arrivals of zero in 2010, and all other variables kept at a level that result in reasonable balance by 2010 (as in Table A.20, page 28), then a shortfall of around 8,000 nurses (around 3% of the total workforce) develops in around 5 years.

3.4 Accumulating shortages or surpluses

The accumulations of shortages or surpluses have a major impact on the labour market for occupations such as RNs where there is very high 'attachment' to the profession.

Thus graduates (and qualified re-entrants and overseas arrivals) are likely to remain available for positions in times of surplus, and even if, say, the number of graduates becomes balanced with the requirements for new recruits, an accumulated surplus from earlier years may result in many graduates being unable to find positions. This continuing surplus occurred through the mid 1990s in Australia, especially in some states where sharp cuts in staffing levels resulted in large negative 'growth' requirements, and the then age profile of the profession was peaked in a low (even negative) net separations age range (early to mid 30s).

Similarly, if there is a shortage, and vacancies are unfilled, RNs working longer hours and taking extra shifts that they would prefer not to, retirements delayed, planned expansions of positions are delayed, and lesser qualified individuals are substituted, then new recruits becoming available will be taken up to fill those vacancies, relieve overworked staff, allow desired retirements and filled planned new positions as well as fill the vacancies that would become available because of underlying growth and replacement requirements. Thus the shortage will continue unless there is a sufficient surplus in any one year to cover the accumulated shortage.

Shortages and surpluses do not fully accumulate. Some of those unable to find desired nursing positions in times of surplus will become established in other careers, and some shortages will be covered on a sustainable basis. In general the former is more likely than the later, so the model assumes only 50% of a surplus will accumulate from one year to the next. However, it is assumed that only 10% of any shortage is covered in a sustainable manner, which would include attracting

additional permanent settlers or permanently attracting back into the profession those who would have otherwise left. (In Table A.20 the rows in the model that are concerned with surpluses are deleted for space and clarity, and because there are no (or negligible) surpluses projected.)

4. Conclusions from the projections

The projections set out and discussed in this report should be taken as only very broadly indicative. There are many uncertainties – in data and assumptions about current circumstances as well as in what may occur over the coming decade.

Table 2. RN projections scenarios, 2020 summary outcomes

Unless otherwise indicated, all scenarios have the following assumptions, that together result in a 2020 outcome close to balance as in Table 20, page 28.

- Population: ABS Medium (B)
- Population Age Profile Factor (PAPF) as described in section 3.1
- Staffing level – 2007 actual national level of 891 FTE RNs per 100,000 (plus PAPF)
- 90% of shortfalls of previous year not met sustainably
- Net separation rate of 3.95% in 2011, increasing to 4.80% in 2015, then remaining constant
- Persons to FTE (38 hour week) ratio of 1 to 1.130
- Net migration arrivals constant at 3,000
- Graduate numbers (completed previous year) increasing by 6% each year (from 2008 actual).

This standard scenario is set out in detail in Table A.20.

Assumption variations for four additional scenarios	2020 outcome		
	Shortage		Shortage as % of workforce (FTE)
	Number	FTE	
Staffing levels progressively improved from the actual 2007 level to 950 FTE (close to the actual level in Victoria in 2007 – see Table A.8)	8,935	7,907	3.0%
Net separation rate one percentage point higher through the period (4.95% to 5.80%)	11,608	10,273	4.2%
Net arrivals progressively decreased to zero	8,395	7,429	3.0%
Completions annual increase reduced to 3%	10,122	8,958	3.6%

4.1 RN projections

The projections broadly indicate continuing shortages and a tight labour market for RNs unless completions of pre-registration programs can be increased by more than 6% every year, which is likely to be very difficult. At this rate of completions the 2007 national staffing level (which is based on a situation of national shortage) can just be maintained. Reliance may also have to continue on large numbers of permanent and long term net arrivals of nursing professionals, which is not consistent with the 2006 COAG decision. Any improvement from the shortage-based staffing levels of 2007 would need further increases in graduate and/or immigrant supply.

4.1 EN projections

It is more difficult to project EN requirements than RN requirements. As an occupation with apparently a much lower 'attachment' it may be relatively easy to entice into the occupation those who are qualified but employed in other occupations. However, this may not be so, especially as ENs separations include those who enter pre-registration programs in universities.

If we generally assume similar circumstances for the EN and RN workforces, except that ENs have twice the net separation rate (basing that assumption on the data in Tables A.9 and A.10), and increase Certificate IV and diploma course completions by 5% every year, the current shortages of ENs increase to more than 5,000 or around 10% of the workforce. Completions would have to increase by around 8% every year for shortages to be eliminated by the end of the period.

5. Learning and career paths in nursing occupations

As shortages tighten there is a tendency to substitute. For RNs, ENS are substituted; for ENs, assistants in nursing or others with a certificate III in Nursing are substituted; and for those with such qualifications, others with lesser or no qualifications are substituted. With shortages of appropriately qualified staff and such substitution, issues of quality of care, management and supervision, and work stress arise. This has been documented, for example, in research by the Center for Health Outcomes and Policy Research, School of Nursing, University of Pennsylvania - most recently in Aitken et al (2010).

There is some career and qualification progression between nursing-related occupations (such as assistants in nursing and personal carers), ENs and RNs. As noted above, around 10% (perhaps more) of all commencing students (13% of domestic commencing students) in pre-registration courses in universities already have an EN qualification (CDNM 2007, p. 4). Universities usually have relationships with vocational education and training institutions so assist the articulation between the EN and RN programs. In addition, many students undertaking a pre-registration university program take out an EN qualification during their course, and work part time as ENs before becoming qualified as an RN. Around 19% of vocational education and training students undertaking a Certificate IV course in the FOE of Nursing already have a qualification at the Certificate III level (FOE unknown).

Informed by the data and analysis in this report, and from other sources, policy and practice can be further developed on the articulation and other aspects of relationships between the nursing occupations and nursing and related occupations. This may improve the quality of nursing care by currently unregulated workers, and the efficiency and effectiveness of teams involving those workers and ENs and RNs. It may also facilitate substantial and cost-effective increases in the numbers of ENs and RNs so that severe shortages can be overcome or avoided.

Box 1. Estimating the numbers employed in nursing and related occupations

There are substantial differences in the reported number of individuals employed in the various nursing and related occupations according to data source. Some of these differences are set out in Table A.2. In addition, the Homes Census 2007 reported 23% more RNs and 31% more ENs working in residential aged care than the AIHW Nursing and Midwifery Labour Force Survey 2007 (Tables A.6 and A.7).

The most significant differences are for ENs - the ABS Census number is only around one third, and ABS Labour Force only around two thirds of the AIHW figure.

The AIHW is generally considered to have the most accurate figures for regulated health professionals, including all registered and enrolled nurses and midwives, but the Institute does not collect data on the unregulated nursing-related occupations. The ABS Census and the ABS Labour Force surveys are other sources of data on registered and enrolled nurses and midwives and those employed in unregulated nursing-related occupations, providing relevant data classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and other variables such as age, and level and field of education (FOE) of highest post-school qualification.

The AIHW estimates are used for the total numbers of registered and enrolled nurses (including midwives) in this report. While it appears that the ABS data collections significantly undercount 'Enrolled and mothercraft nurses' (ANZSCO category 4114), it is not clear if the nursing-related occupations are also under-counted or, perhaps, over-counted. It is possible that a number of those counted as ENs in the AIHW dataset are counted as 'Nursing support and personal care workers' (ANZSCO category 4233), 'Aged and disabled carers' (ANZSCO category 4231) or other nursing-related occupations in the ABS collections. More than 16,000 workers in nursing-related occupations (not including RNs, RMs and ENs) are indicated in the Census dataset to have post school qualifications in the FOE of Nursing, but only around half of these are at Certificate IV or above, and thus may be qualified for EN (or RN) registration. Thus it appears that something in the order of up to 8,000 individuals may be qualified and registered as ENs, but classified as working in related occupations. The data collections do not indicate whether these are actual job classifications, personal job descriptions (when responding to the Census or Labour Force survey questions), or a matter of coding within ABS. Even if those workers could be classified as ENs (or were in the AIHW collection), that still leaves about 12,000 to 22,000 ENs in the AIHW collection unaccounted for in ABS Labour Force and Census datasets respectively.

Those working in nursing related occupations with a highest post school qualification in a FOE other than Nursing may include those with nursing qualifications at a lower (or equal) level. There are more than 70,000 individuals in nursing-related occupations with a highest post school qualification in a FOE other than Nursing, and more than 23,000 with their highest qualification above certificate IV level (that is, above standard EN level) (many others do not state or adequately describe a level). There are thus many possible explanations for the differences between the datasets.

The data appears to indicate that some of the individuals who are classified by the AIHW as employed ENs may be employed in related occupations. But the most likely interpretation remains significant undercounting of ENs in the ABS datasets.

Box 2. What is a nursing-related occupation?

In this report the ANZSCO classifications of ‘Midwifery and Nursing Professionals’ (254) and ‘Enrolled and Mothercraft Nurses’ (4114) are considered ‘nursing occupations’. In addition, there are a number of ‘nursing-related’ occupations. These do not formally require nursing registration as an RN or an EN. However, some of these occupations involve nursing work, and a large number of individuals in these occupations have post-school qualifications in nursing. This is especially so for ‘Nursing support and personal care workers’, which includes assistants in nursing and personal care workers, and 18% of those working in the occupation (more than 10,000) were reported in the 2006 Census as having a highest post-school qualification in the FOE of Nursing, the majority at Certificate III level, most of the rest at a higher level (Table A.18). There are six other occupations in the ‘Community and Personal Service Workers major classification (as classified by ANZSCO) in which a proportion of the workers would undertake some nursing work at least some of the time, and between 11% and 3% of those classified in these occupations have a highest post-school qualification in the FOE of Nursing. In addition, Health and Welfare Services Managers (1342) includes some with a highest qualification in Nursing (Table A.19), but the category of ‘Nurse Managers’ (2543) under Midwifery and Nursing Professionals (254) would generally include directors of nursing and other specifically nursing managers.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ASCED	Australian Standard Classification of Education
DEEWR	Australian Government Department of Education, Employment and Workplace Training
DIAC	Australian Government Department of Immigration and Citizenship
FOE	Field of Education, a classification in the Australian Standard Classification of Education for non-school qualifications.
FTE	Full time equivalent

References

- Aitken, Linda H., Sloane, Douglas M., Cimiotti, Jeannie P., Clarke, Sean P., Flynn, Linda, Seago, Jean Ann, Spetz, Joanne & Smith, Herbert L. 2010, 'Implications of the California Nurse Staffing Mandate for Other States', *Health Services Research*, DOI: 10.1111/j.1475-6773.2010.01114.x, viewed 22 April 2010, <http://www.nursing.upenn.edu/chopr/Documents/Aiken.2010.CaliforniaStaffingRatios.pdf>
- Australian Institute of Health and Welfare (2000). *Australia's health 2000*, Australian Institute of Health and Welfare, Canberra, viewed 16 June 2008, <http://www.aihw.gov.au/publications/index.cfm/title/5742>
- Council of Deans of Nursing and Midwifery – Australia and New Zealand (2008). *Pre-registration nurse education data collection and publication project 2007*, Council of Deans of Nursing and Midwifery – Australia and New Zealand, Melbourne, viewed 16 June 2008, <http://www.cdnm.edu.au/pdfs/DOHARep080303.pdf>
- Department of Education, Employment and Workplace Relations (DEEWR) 2009, *Undergraduate Applications, Offers and Acceptances, 2009*, viewed 1 April 2010, <http://www.deewr.gov.au/HigherEducation/Publications/HEReports/Pages/UndergraduateApplications2009.aspx>
- Little, Lisa & Buchan, James 2007, *Nursing Self Sufficiency/Sustainability in the Global Context*, Developed for the International Centre on Nurse Migration and the International Centre for Human Resources in Nursing, Geneva, viewed 9 April 2010, http://www.intlnursemigration.org/assets/pdfs/SelfSufficiency_EURO.pdf
- Martin, Bill & King, Debra 2008, *2007 National Aged Care Workforce Census and Survey – Who Cares for Older Australians? A Picture of the Residential and Community Based Aged Care Workforce – Final Report*, National Institute of Labour Studies, Flinders University; Australian Government Department of Health and Ageing, Canberra, viewed 25 February 2010, <http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-workforce-census-2007-final-report.htm>
- McKenna, Lisa, Sadler, Robert , Long, Michael & Burke Gerald 2001, *Enrolled Nurse Education Final Report to the National Review of Nurse Education*, EIP 01/17, Higher Education Group, Department of Education, Training and Youth Affairs, viewed 1 April 2010, http://www.dest.gov.au/archive/highered/eippubs/eip01_17/default.htm#toc
- Preston, Barbara 2006, *Nurse Workforce Futures: development and application of a model of demand for and supply of graduates of Australian and New Zealand pre-registration nursing and midwifery courses to 2010*. Melbourne: Council of Deans of Nursing and Midwifery – Australia and New Zealand. viewed 16 June 2008, <http://www.cdnm.edu.au/pdfs/Nurseworkforcefutures.pdf>.
- Shah, Chandrah & Burke, Gerald 2002, 'Job Growth and Replacement Needs in Nursing Occupations', *National Review of Nursing Education 2002: The Nursing Workforce*, Department of Education, Science and Training and Department of Health and Ageing, Canberra.

Statistical Annex

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Table A.5 Employed registered and enrolled nurses, working setting, 2007

	Registered nurses		Enrolled nurses	
	Number	Percent	Number	Percent
Hospital	134 098	63%	26 087	51%
Psychiatric hospital / mental health	8 579	4%	2 168	4%
Day procedure centre	2 702	1%	724	1%
Residential aged care	18 198	9%	12 443	24%
Hospice	676	0%	184	0%
Community health centre	13 216	6%	1 252	2%
Doctors' rooms	6 351	3%	1 623	3%
Outpatient clinic	2 281	1%	432	1%
School	1 698	1%	268	1%
Tertiary education	6 194	3%	1 186	2%
Other	11 353	5%	2 589	5%
Not stated	6 995	3%	2 032	4%
Total	212 342	100%	50 990	100%

Source: AIHW Nursing and Midwifery Labour Force Survey, 2007, <http://www.aihw.gov.au/publications/index.cfm/title/10724>.

Table A.6 Employed registered and enrolled nurses, total and number in the working setting of residential aged care (RAC), 1995 to 2007

		Registered nurses		Enrolled nurses		Total nurses
		Number	% of total nurses	Number	% of total nurses	Number
1995	Total	171 482	77.9%	48 747	22.1%	220 229
	<i>RAC</i>	<i>22 430</i>	<i>58.1%</i>	<i>16 203</i>	<i>41.9%</i>	<i>38 633</i>
1997	Total	176 217	79.2%	46 311	20.8%	222 528
	<i>RAC</i>	<i>22 153</i>	<i>60.7%</i>	<i>14 356</i>	<i>39.3%</i>	<i>36 509</i>
1999	Total	179 389	79.8%	45 432	20.2%	224 821
	<i>RAC</i>	<i>21 434</i>	<i>60.8%</i>	<i>13 819</i>	<i>39.2%</i>	<i>35 253</i>
2001	Total	183 224	80.3%	45 006	19.7%	228 230
	<i>RAC</i>	<i>20 714</i>	<i>62.4%</i>	<i>12 465</i>	<i>37.6%</i>	<i>33 179</i>
2003	Total	189 071	79.9%	47 574	20.1%	236 645
	<i>RAC</i>	<i>20 655</i>	<i>61.2%</i>	<i>13 117</i>	<i>38.8%</i>	<i>33 772</i>
2005	Total	198 315	81.2%	46 044	18.8%	244 359
	<i>RAC</i>	<i>20 185</i>	<i>62.2%</i>	<i>12 275</i>	<i>37.8%</i>	<i>32 460</i>
2007	Total	212 342	80.6%	50 990	19.4%	263 332
	<i>RAC</i>	<i>18 198</i>	<i>59.4%</i>	<i>12 443</i>	<i>40.6%</i>	<i>30 641</i>
Change 1995 to 2007	Total	23.8%	3.6%	4.6%	-12.5%	19.6%
	<i>RAC</i>	<i>-18.9%</i>	<i>2.3%</i>	<i>-23.2%</i>	<i>-3.2%</i>	<i>-20.7%</i>

Source: AIHW Nursing and Midwifery Labour Force Surveys, various years.

Table A.7 Occupation of the residential care workforce, Homes Census, 2003 and 2007

Occupation		2003		2007		Change 2003 to 2007	
		Persons	FTE	Persons	FTE	Persons	FTE
Registered nurse	Number	24 019	16 265	22 399	13 247	-6.7%	-18.6%
	Percent of total	20.8%	21.4%	16.8%	16.8%	-19.1%	-21.6%
Enrolled nurse	Number	15 604	10 945	16 293	9 856	4.4%	-9.9%
	Percent of total	13.5%	14.4%	12.2%	12.5%	-9.4%	-13.3%
Personal Carer	Number	67 143	42 943	84 746	50 542	26.2%	17.7%
	Percent of total	58.1%	56.6%	63.6%	64.1%	9.5%	13.3%
Allied Health	Number	8 895	5 776	9 875	5 204	11.0%	-9.9%
	Percent of total	7.7%	7.6%	7.4%	6.6%	-3.7%	-13.2%
Total employed in RAC	Number	115 661	75 929	133 313	78 849	15.3%	3.8%
	Percent of total	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%

Source: Martin & King 2008, Table 3.2, p. 11

Note: There are some minor differences in some totals and percentages between the table above and that in Martin and King, which may be due to rounding.

Table A.8 FTE RNs, ENs and total nurses, per 100,000 population (38 hour week), 2007

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
RNs	847	949	873	986	773	1 085	1 272	925	891
ENs	159	275	159	299	200	170	160	180	203
Total nurses	1 006	1 224	1 032	1 285	973	1 255	1 432	1 105	1 094

Source: AIHW Nursing and Midwifery Labour Force Survey, 2007, additional tables,

<http://www.aihw.gov.au/publications/index.cfm/title/10724>

Table A.9 Percentage of those with professional qualifications in Nursing as their highest qualification in each five year age range 20 to 69 who are working as RNs, Australia 2006

20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total
88%	81%	74%	71%	71%	70%	67%	55%	35%	13%	65%

Source: ABS 2006 Census TableBuilder

Table A.10 Percentage of those with Certificate IV qualifications in Nursing as their highest qualification in each five year age range 15 to 69 who are working as enrolled or mothercraft nurses, Australia 2006

15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	64-69	Total
30%	40%	36%	31%	27%	24%	24%	23%	21%	11%	5%	25%

Note: It appears that ENs are significantly undercounted in the Census (see Box 1). This table only includes those with Cert IV in the FOE of Nursing as their highest qualification so there is no overlap with possible RNs (especially those who received a diploma RN qualification decades ago).

Source: ABS 2006 Census TableBuilder

Table A.11 Age profiles of nursing and related occupations, 2006

	Registered nurses and midwives	Enrolled and mothercraft nurses	Nursing support and personal care workers	Other carers and nursing related workers	Total
20-29	13%	16%	17%	13%	13%
30-39	23%	20%	19%	17%	21%
40-49	33%	36%	31%	31%	32%
50-59	26%	24%	27%	31%	27%
60-69	6%	4%	7%	9%	7%

Source: ABS 2006 Census TableBuilder

Table A.12 Age profiles of RNs and ENs, ABS Labour Force 2009, AIHW 2007 and Census 2006

	Registered nurses			Enrolled nurses		
	ABS Labour Force 2009	AIHW 2007	ABS Census 2006	ABS Labour Force 2009	AIHW 2007	ABS Census 2006
<25	7%	5%	5%	4%	7%	10%
25-34	21%	19%	18%	16%	15%	15%
35-44	26%	26%	28%	23%	27%	28%
45-54	27%	32%	34%	36%	35%	35%
55+	20%	18%	15%	21%	16%	12%

Source:

ABS Labour Force annual average for 2009, published on Job Outlook website, <http://joboutlook.gov.au/pages/alpha.aspx>
 AIHW 2009 Nursing and Midwifery Labour Force, detailed tables, <http://www.aihw.gov.au/publications/index.cfm/title/10724>
 ABS 2006 Census TableBuilder

Table A.13 Award course completions for all students enrolled in courses for initial registration as nurses by citizenship and sex, 2001 to 2008

	2001	2002	2003	2004	2005	2006	2007	2008
Domestic Students								
Males	603	624	582	671	667	708	756	843
Females	4 481	4 686	4 738	4 960	4 983	5 406	5 927	6 343
Persons	5 084	5 310	5 320	5 631	5 650	6 114	6 683	7 186
Overseas Students								
Males	16	29	23	33	56	138	241	291
Females	122	268	256	312	397	759	1 000	1 309
Persons	138	297	279	345	453	897	1 241	1 600
All Students								
Males	619	653	605	704	723	846	997	1 134
Females	4 603	4 954	4 994	5 272	5 380	6 165	6 927	7 652
Persons	5 222	5 607	5 599	5 976	6 103	7 011	7 924	8 786

Source: DEEWR Selected Higher Education Statistics, Award course completions 2008: selected higher education statistics tables, Table 17, <http://www.deewr.gov.au/HigherEducation/Publications/HEStatistics/Publications/Pages/Students.aspx>

Table A.14 Completions in the FOE of Nursing, vocational education and training, by level of qualification, 2002 to 2008

	2002	2003	2004	2005	2006	2007	2008
Diploma or higher	244	43	24	490	534	689	854
Certificate IV	2,035	2,485	2,181	2,936	2,962	3,078	3,173
Certificate III	93	101	108	65	34	19	42
Certificate II	51	122	139	102	85	100	118
Total	2,423	2,751	2,452	3,593	3,615	3,886	4,187

Source: NCVET VOCSTATS, tables created 1 April 2010

Table A.15 Completions in the FOE of Nursing, vocational education and training, by detailed level of qualification, and sex, 2008

	Male	Female	Total	% female
Graduate certificate	0	13	13	100.0%
Advanced diploma	0	4	4	100.0%
Diploma	67	770	837	92.0%
Certificate IV	412	2761	3173	87.0%
Certificate III	11	31	42	73.8%
Certificate II	12	106	118	89.8%
Total	502	3685	4187	88.0%

Source: NCVET VOCSTATS, tables created 1 April 2010

Table A.16 Training rates for RNs and ENs, 2007

	RNs	ENs
Number employed in the occupation	212 342	50 990
Completions 2007	7 924	3 078
Training rate	3.7%	6.0%

Sources: Table A.5 (AIHW data), Table A.13 (DEEWR higher education completions), Table A.14 (VOCSTATS Certificate IV completions).

Table A.17 International arrivals and departures of nursing professionals, by type of movement and age, 2008

	Settler Arrivals	Long Term Resident Return	Long Term Visitor Arrivals	TOTAL arrivals	Resident Perm Departs	Long Term Resident Departs	Long Term Visitor Departs	TOTAL departs	NET arrivals
20-24	140	93	606	839	49	240	234	523	316
25-29	394	401	1 373	2 168	135	405	618	1 158	1 010
30-34	493	305	1 064	1 862	191	232	497	920	942
35-39	463	220	808	1 491	213	178	292	683	808
40-44	388	187	421	996	170	135	199	504	492
45-49	150	174	269	593	143	143	129	415	178
50-54	70	143	201	414	156	168	93	417	-3
55-59	48	92	92	232	76	90	65	231	1
60-64	14	43	25	82	30	34	37	101	-19
65+	14	28	7	49	11	11	23	45	4
Total	2 189	1 686	4 891	8 766	1 178	1 638	2 190	5 006	3 760

Source: Department of Immigration and Citizenship (DIAC) custom tables

Table A.1. Number employed in nursing and related occupations, and number and percentage with a highest post-school qualification in the Nursing FOE, 2006

	Midwifery and Nursing Professionals, nfd	Midwives	Nurse Educators and Researchers	Nurse Managers	Registered Nurses	TOTAL registered nurses & midwives	Enrolled and Mothercraft Nurses
Total number	928	12 229	3 759	10 887	171 963	199 766	19 172
Number with a highest nonschool qualification in nursing	764	1 1236	2 818	8 779	14 8435	17 2032	15 886
% with a highest nonschool qualification in nursing	82%	92%	75%	81%	86%	86%	82%

Table A.1. continued

	Nursing Support and Personal Care Workers	Health and Welfare Support Workers, nfd	Personal Carers and Assistants, nfd	Aged and Disabled Carers	Carers and Aides, nfd	Indigenous Health Workers	Special Care Workers	Total related occupations	Total Nursing and related occupations
Total number	56 505	672	2 054	76 109	4 531	987	2 280	143 138	362 076
Number with a highest nonschool qualification in nursing	10 229	75	178	5 696	327	39	60	16 604	204 522
% with a highest nonschool qualification in nursing	18%	11%	8%	7%	7%	4%	3%	12%	56%

Source: ABS Census 2006, TableBuilder

Note: The number of 'enrolled and mothercraft nurses appears significantly understated in this ABS Census dataset. See Table A2.

Table A.2 Number employed in nursing and related occupations according to different data sources, 2005, 2006, 2007 and 2009

	Midwifery and Nursing Professionals, nfd	Midwives	Nurse Educators and Researchers	Nurse Managers	Registered Nurses	TOTAL registered nurses & midwives	Enrolled and Mothercraft Nurses
AIHW 2005						198 315	46 044
AIHW 2007						212 342	50 990
ABS Census 2006	928	12 229	3 759	10 887	171 963	199 766	19 172
ABS Labourforce August 2006	-	10 000	4 000	13 000	172 000	200 000	29 000
ABS Labourforce August 2007	-	12 000	3 000	13 000	186 000	214 000	31 000
ABS Labourforce August 2008	-	16 000	6 000	15 000	177 000	213 000	32 000
ABS Labourforce August 2009	-	14 000	3 000	20 000	202 000	240 000	21 000

Table A.2. continued

	Nursing Support and Personal Care Workers	Health and Welfare Support Workers, nfd	Personal Carers and Assistants, nfd	Aged and Disabled Carers	Carers and Aides, nfd	Indigenous Health Workers	Special Care Workers	Total Nursing and related occupations
ABS Census 2006	56 505	672	2 054	76 109	4 531	987	2 280	362 076
ABS Labourforce August 2006	65 000	-	1 000	85 000	1 000	1 000	3 000	384 000
ABS Labourforce August 2007	70 000	-	-	78 000	1 000	2 000	2 000	399 000
ABS Labourforce August 2008	67 000	-	-	85 000	2 000	-	2 000	403 000
ABS Labourforce August 2009	77 000	-	-	114 000	-	1 000	3 000	457 000

Source: AIHW Nursing and Midwifery Labour Force 2005 and 2007; ABS Census 2006, TableBuilder; ABS Labour Force , Cat. No. 6291.0.55.003 Datacube E08_aug96

Table A.3 Population projections, 0-64, 65-74, 75-85, 85+ and total, Australia, Series B (medium assumptions), 2010 to 2020

	0-64	65-74	75-84	85+	TOTAL
2010	18 972 927	1 622 220	994 865	400 999	21 991 011
2011	19 200 040	1 688 888	1 009 456	420 682	22 319 066
2012	19 390 857	1 789 563	1 028 247	438 797	22 647 464
2013	19 594 494	1 877 310	1 047 897	456 666	22 976 367
2014	19 804 419	1 955 854	1 072 584	473 041	23 305 898
2015	20 009 883	2 037 117	1 099 521	489 588	23 636 109
2016	20 216 313	2 116 339	1 129 930	504 400	23 966 982
2017	20 423 092	2 188 498	1 170 945	515 278	24 297 813
2018	20 624 447	2 266 499	1 211 790	525 697	24 628 433
2019	20 827 844	2 328 126	1 266 897	535 757	24 958 624
2020	21 027 563	2 387 917	1 325 657	546 953	25 288 090
Increase 2010 to 2020	10.8%	47.2%	33.2%	36.4%	15.0%

Source: ABS 2008, *Population Projections, Australia* Cat. No. 3222.0 TABLE B9. Population projections, By age and sex, Australia - Series B, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3222.02006%20to%202101?OpenDocument>

Table A.4 Population Age Profile Factor (PAPF), Australia, 2007 to 2020

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Raw PAPF	1.531	1.539	1.547	1.557	1.567	1.580	1.592	1.603	1.614	1.625	1.636	1.646	1.657	1.669
Indexed to 2007	1.000	1.005	1.010	1.017	1.024	1.032	1.040	1.047	1.054	1.061	1.069	1.075	1.082	1.090

Note: The PAPF for each year is derived by applying the PAPF formula to the proportion of people in each age range (Table A3). The PAPF formula has the following values per person: 0-64: 1; 65-74: 3.105; 75-84: 5.681; 85+: 11.392. These values were derived from AIHW data on a number of matters to estimate the differential requirements for RNs for each age group. The derivation of the formula is explained in Preston 2006, pp. 77- 92. The raw PAPF score is indexed to 2007 because 2007 workforce data from the AIHW is used as the baseline staffing level.

Table A.18. Number employed in nursing and related occupations, and percentage with a highest post-school qualification in the Nursing FOE by level of qualification, 2006

	Total Registered Nurses & Midwives	Enrolled & Mothercraft Nurses	Nursing Support & Personal Care Workers	Health & Welfare Support Workers, nfd	Personal Carers & Assistants, nfd	Aged & Disabled Carers	Carers & Aides, nfd	Indigenous Health Workers	Special occupations Care Workers	Tota nursing-related occupations (not RN, RM or EN)	Tota nursing-related occupations (not RN, RM or EN)I
Total number	199 766	19 172	56 505	672	2 054	76 109	4 531	987	2 280	143 138	143 138
Postgraduate Degree	2%	0%	0%	0%	0%	0%	0%	0%	0%	35	0.0%
Graduate Dip. & Graduate Cert.	6%	0%	0%	1%	0%	0%	0%	0%	0%	57	0.0%
Bachelor Degree	48%	4%	2%	5%	2%	1%	2%	1%	1%	2 304	1.6%
Advanced Diploma and Diploma	17%	24%	2%	3%	2%	1%	2%	1%	1%	2 142	1.5%
Certificate IV	4%	44%	2%	1%	1%	1%	1%	1%	0%	2 170	1.5%
Certificate III	1%	2%	10%	0%	2%	2%	1%	1%	0%	7 179	5.0%
Certificate II	1%	1%	0%	0%	0%	0%	0%	0%	0%	408	0.3%
Level inadequately described	4%	5%	1%	0%	1%	1%	1%	0%	0%	1 029	0.7%
Level not stated	3%	3%	1%	1%	1%	1%	1%	0%	0%	1 283	0.9%
Total with a highest post school qualification in Nursing	86%	83%	18%	11%	9%	7%	7%	4%	3%	16 607	11.6%

Source: ABS Census 2006, TableBuilder

Note: The number of 'enrolled and mothercraft nurses appears significantly understated .See Table A.2.

Table A.19 Individuals with a highest post school qualification in the Nursing FOE, all occupations, nursing and related occupations, and health and welfare services managers, by level of qualification, Australia, 2006

	All occupations	Nursing and related occupations	Nursing and related occupations as % of all occupations	Health and Welfare Services Managers	Health and Welfare Services Managers as % of all occupations	Nursing and related occupations plus Health and Welfare Services Managers	Nursing and related occupations plus Health and Welfare Services Managers as % of all occupations
Postgraduate Degree Level	5 002	3 748	74.9%	263	5.3%	4 011	80.2%
Graduate Diploma and Graduate Certificate Level	14 610	13 085	89.6%	309	2.1%	13 394	91.7%
Bachelor Degree Level	112 683	98 364	87.3%	1763	1.6%	100 127	88.9%
Advanced Diploma and Diploma Level	51 475	41 054	79.8%	642	1.2%	41 696	81.0%
Certificate Level	39 970	31 488	78.8%	110	0.3%	31 598	79.1%
Level of education not stated	10 596	9 003	85.0%	78	0.7%	9 081	85.7%
Level of education inadequately described	11 645	7 780	66.8%	132	1.1%	7 912	67.9%
All levels	245 981	204 522	83.1%	3297	1.3%	207 819	84.5%

Source: ABS Census 2006, TableBuilder

Assumptions for Table A.20

The assumptions are generally reasonable, though staffing levels are based on the 2007 actual level which was a situation of shortage, net separation rates are most unlikely to be any lower, and annual increases in course completions are probably in the upper realistic range (though below the average for the past decade). These assumptions have been selected in this combination because the outcome for 2020 is close to balance, and thus provides a basis for different scenarios (Table 2).

- Population: ABS Population Projections, Medium (B)
- Population Age Profile Factor (PAPF) as described in section 3.1
- Staffing level – 2007 actual national level of 891 FTE RNs per 100,000 (plus PAPF)
- 90% of shortfalls of previous year not met sustainably (thus most of any shortage accumulates from one year to the next)
- Net separation rate of 3.95% in 2011, increasing to 4.80% in 2015, then remaining constant
- Persons to FTE (38 hour week) ratio of 1 to 1.130
- Net migration arrivals constant at 3,000
- Graduate numbers (completed previous year) increasing by 6% each year (from 2008 actual).

Note: Rows 14 and 15 that are concerned with surpluses are deleted, but row numbering left unchanged. Details of methodology in Preston 2006.

TABLE A.20. Demand and supply projections for graduates of pre-registration nursing courses, 2011 to 2020 (standard)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1. Population ('000s)	22 319.1	22 647.5	22 976.4	23 305.9	23 636.1	23 967.0	24 297.8	24 628.4	24 958.6	25 288.1
2. Baseline FTE RN/100,000 population	891	891	891	891	891	891	891	891	891	891
3. Population age profile factor	1.023	1.032	1.040	1.047	1.054	1.061	1.068	1.075	1.082	1.090
4. Adjusted FTE RN/100,000	912	920	926	933	939	946	952	958	964	971
5. Target total employed FTE RNs	203 493	208 245	212 849	217 391	222 043	226 662	231 246	235 868	240 653	245 581
6. Change from previous year target total	4 313	4 751	4 604	4 542	4 651	4 620	4 584	4 622	4 786	4 927
7. % of shortfall of previous year not met sustainably	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
8. Shortfall carried over from previous year	0	1830	2604	3401	4310	5482	6332	6909	7324	7713
9. Actual change from previous year	4 313	6 581	7 208	7 943	8 961	10 102	10 916	11 531	12 109	12 640
10. Net separation %	3.95%	4.15%	4.35%	4.57%	4.80%	4.80%	4.80%	4.80%	4.80%	4.80%
11. Net separation number (FTE)	8 034	8 557	9 151	9 780	10 449	10 617	10 796	10 990	11 200	11 418
12. Persons: FTE RNs	1.130	1.130	1.130	1.130	1.130	1.130	1.130	1.130	1.130	1.130
13. Recruits (persons) required to meet target total	13 952	15 138	16 359	17 723	19 409	20 719	21 712	22 521	23 309	24 058
16. Net migration arrivals	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000	3 000
17. Graduate recruits required (persons)	10 952	11 933	12 767	13 579	14 566	15 031	15 042	14 731	14 264	13 652
18. % of graduates who are available and suitable	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
19. Total number of graduates required (DEMAND)	11 529	12 561	13 439	14 294	15 332	15 822	15 833	15 506	15 015	14 370
20. Total number of graduates projected (SUPPLY)	9 500	10 070	10 674	11 314	11 993	12 713	13 476	14 284	15 141	16 050
21. Surplus/shortage (number)	-2 029	-2 491	-2 765	-2 979	-3 339	-3 110	-2 358	-1 222	127	1 679
22. Surplus/shortage (FTE)	-1 796	-2 205	-2 447	-2 637	-2 955	-2 752	-2 086	-1 082	112	1 486
23. Surplus/shortage (FTE) as % of total nurses	-0.9%	-1.1%	-1.1%	-1.2%	-1.3%	-1.2%	-0.9%	-0.5%	0.0%	0.6%
24. Surplus/shortage as % of DEMAND	-17.6%	-19.8%	-20.6%	-20.8%	-21.8%	-19.7%	-14.9%	-7.9%	0.8%	11.7%
25. Surplus/shortage as % of SUPPLY	-21.4%	-24.7%	-25.9%	-26.3%	-27.8%	-24.5%	-17.5%	-8.6%	0.8%	10.5%
26. SUPPLY as % of DEMAND	82.4%	80.2%	79.4%	79.2%	78.2%	80.3%	85.1%	92.1%	100.8%	111.7%

ADDENDUM April 2011 :

Scenarios to 2020 involving unlicensed nursing workers

1. Introduction

This addendum sets out projections to 2020 of nine scenarios, set out in Table I. These scenarios involve (a) unlicensed nursing workers’ share of the total nursing workforce (that is, registered nurses, enrolled nurses plus unlicensed nursing workers) remaining unchanged, increasing to 10% and increasing to 30% by 2020, and (b) overall staffing levels remaining unchanged, improving by 1.2% per annum, and improving by 1.5% per annum. These scenarios are based on suggestions by ANF officers.

TABLE I. Scenarios to 2020 involving changes in unlicensed nursing workers’ shares of the total nursing workforce and changes in total nursing staffing levels

		Unlicensed nursing workers’ share of total nursing workforce		
		No change	Increase to 10% by 2020	Increase to 30% by 2020
Staffing level	No change	Scenario 1	Scenario 2	Scenario 3
	Improve by 1.2% per annum	Scenario 4	Scenario 5	Scenario 6
	Improve by 1.5% per annum	Scenario 7	Scenario 8	Scenario 9

It is difficult to usefully define ‘unlicensed nursing workers’ in the context of available data. In this analysis ‘unlicensed nursing workers’ are Nursing Support and Personal Care Workers (NSPCW), and two separate analyses are carried out:

- involving those with a highest post school qualification in 'Nursing' (which fewer than one in five workers classified as NSPCWs have) – ‘qualified unlicensed nursing workers’
- involving the total NSPCW category (unqualified as well as qualified) – ‘all unlicensed nursing workers’.

Scenarios involving QUALIFIED unlicensed nursing workers

The 2009 number of qualified unlicensed nursing workers is estimated to be 13,860, derived from the number (77,000) of NSPCWs according to ABS Labour Force 2009, and the percentage (18%) of NSPCWs with a highest post school qualification in Nursing in the 2006 ABS Census (see p. 3 above). It is possibly an underestimate because some may have a nursing qualification but a higher qualification in another field, and there might be a general undercounting, as there is for ENs in the Labour Force dataset (see Box 1, page 13 above). The qualification is used because the analysis is intended to inform considerations related to bringing the NSPCWs into the regulated nursing workers category, and qualification is a pre-requisite for regulation.

Using the same method used for projecting RNs in the full report (applying ABS population projections series B, and a population age profile factor or PAPF, as described in section 3.1), results in a base number (headcount, not full time equivalent) of 14,647 in 2010. This is 5% of 'total qualified nursing workforce', defined as RNs plus ENs plus these NSPCWs with a highest post school qualification in Nursing. It is assumed that the PAPF, which had been developed from original data regarding RNs, applies equally to the three categories of nursing workers, though it is likely that a more pronounced PAPF would apply to ENs and NSPCWs as they tend to be more concentrated in aged care facilities. This method of projection is used for the period through to 2020.

TABLE II. Scenarios to 2020 involving changes in QUALIFIED unlicensed nursing workers' shares of the total nursing workforce and changes in total nursing staffing levels

	RNs	ENs	NSPCWs (qualified)	Total qualified nursing workforce	RNs as % of total qualified nursing workforce	ENs as % of total qualified nursing workforce	NSPCWs as % of total qualified nursing workforce
2010	225,074	51,279	14,647	291,000	77%	18%	5%
2020 Scenario 1	277,506	63,225	18,059	358,790	77%	18%	5%
2020 Scenario 2	262,895	59,896	35,998	358,790	73%	17%	10%
2020 Scenario 3	204,453	46,581	107,756	358,790	57%	13%	30%
2020 Scenario 4	312,664	71,235	20,347	404,246	77%	18%	5%
2020 Scenario 5	296,202	67,485	40,559	404,246	73%	17%	10%
2020 Scenario 6	230,355	52,483	121,408	404,246	57%	13%	30%
2020 Scenario 7	322,057	73,376	20,958	416,390	77%	18%	5%
2020 Scenario 8	305,101	69,512	41,777	416,390	73%	17%	10%
2020 Scenario 9	237,276	54,059	125,056	416,390	57%	13%	30%

Notes: The scenarios are those set out in Table I. The numbers of workers are headcount, not full time equivalent. The ratio of FTE to headcount is that used for RNs in Table A. 20 above – 1 to 1.130. The projections are based on those in Table A.20, with growth being based on the ABS population projections (Medium – series B) and the Population Age Profile Factor (PAPF) as described in section 3.1.

TABLE III. Average annual increase in workforce size, 2010 to 2020

	RNs		ENs		NSPCWs (qualified)		Total qualified nursing workforce	
	Number	%	Number	%	Number	%	Number	%
2020 Scenario 1	5,243	2.3%	1,195	2.3%	341	2.3%	6,779	2.3%
2020 Scenario 2	3,782	1.7%	862	1.7%	2,135	14.6%	6,779	2.3%
2020 Scenario 3	-2,062	-0.9%	-470	-0.9%	9,311	63.6%	6,779	2.3%
2020 Scenario 4	8,759	3.9%	1,996	3.9%	570	3.9%	11,325	3.9%
2020 Scenario 5	7,113	3.2%	1,621	3.2%	2,591	17.7%	11,325	3.9%
2020 Scenario 6	528	0.2%	120	0.2%	10,676	72.9%	11,325	3.9%
2020 Scenario 7	9,698	4.3%	2,210	4.3%	631	4.3%	12,539	4.3%
2020 Scenario 8	8,003	3.6%	1,823	3.6%	2,713	18.5%	12,539	4.3%
2020 Scenario 9	1,220	0.5%	278	0.5%	11,041	75.4%	12,539	4.3%

Notes: As for TABLE II

The outcomes for the different categories of qualified nursing workers for the nine scenarios are set out in Tables II and III, and can be summarised as follows:

- **Scenario 1:** *No change in NSPCWs' share of the total qualified nursing workforce and no change in staffing levels.* Between 2010 and 2020 there is no change in the share of the total qualified nursing workforce: RNs remain at 77%, ENs at 18% and qualified NSPCWs at 5%. The average annual increase in workforce size over the period for each category of workers is 2.3% (in line with projected population growth with PAPF applied). This 2.3% annual average increase is 5,243 additional RNs, 1,195 additional ENs, 341 additional qualified NSPCWs, and 6,779 additions to the total qualified nursing workforce each year³.
- **Scenario 2:** *NSPCWs' share of the total qualified nursing workforce increases to 10% by 2020 (the shares of RNs and ENs adjust proportionately), and no change in staffing levels.* Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 73%, and that of ENs falls from 18% to 17%, while that of qualified NSPCWs increases from 5% to 10%. The average annual increase in the total qualified workforce is again 2.3% (6,779), but RNs and ENs both increase by only 1.7% (3,782 and 862 respectively), while NSPCWs increase by 14.6% (2,135) each year.
- **Scenario 3:** *NSPCWs' share of the total qualified nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and no change in staffing levels.* Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 57%, and that of ENs falls from 18% to 13%, while that of qualified NSPCWs increases from 5% to 30%. The average annual increase in workforce size over the period for each category of workers is again 2.3%, but the numbers of RNs and ENs both decline by 0.9% (-2,062 and -470 respectively), while NSPCWs increase by 63.6% (9,311) each year.
- **Scenario 4:** *No change in NSPCWs' share of the total qualified nursing workforce, and an average annual improvement in staffing levels of 1.2%.* Between 2010 and 2020 there is no change in the share of the total qualified nursing workforce: RNs remain at 77%, ENs at 18% and qualified NSPCWs at 5%. The average annual increase in workforce size over the period for each category of workers is 3.9% (in line with projected population growth with PAPF applied, and the average annual improvement in staffing levels of 1.2%). This 3.9% annual average increase is 8,759 additional RNs, 1,996 additional ENs, 570 additional qualified NSPCWs, and 11,325 additions to the total qualified nursing workforce.
- **Scenario 5:** *NSPCWs' share of the total qualified nursing workforce increases to 10% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.2%.* Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 73%, and that of ENs falls from 18% to 17%, while that of qualified NSPCWs increases from 5% to 10%. The average annual increase in the total qualified workforce is again 3.9% (11,325), but RNs and ENs both increase by only 3.2% (7,113 and 1,621 respectively), while NSPCWs increase by 17.7% (2,591) each year.

³ These figures indicate one element for estimating the number of new recruits required (graduates, qualified immigrants, etc). They account for the 'growth' element, but not for the 'replacement' element, which, for RNs, is the projected 'net separation' rates and numbers of rows 10 and 11 of TABLE A.20. Net separations takes account of replacements required for those retiring, resigning, taking (and returning from) extended leave, or entering a more qualified category (ENs gaining RN qualification, for example). The separation rates are likely to be higher for ENs and NSPCWs than for RNs.

- **Scenario 6:** NSPCWs' share of the total qualified nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.2%. Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 57%, and that of ENs falls from 18% to 13%, while that of qualified NSPCWs increases from 5% to 30%. The average annual increase in the total qualified workforce is again 3.9% (11,325), but RNs and ENs both increase by only 0.2% (528 and 120 respectively), while NSPCWs increase by 72.9% (10,676) each year.
- **Scenario 7:** No change in NSPCWs' share of the total qualified nursing workforce, and an average annual improvement in staffing levels of 1.5%. Between 2010 and 2020 there is no change in the share of the total qualified nursing workforce: RNs remain at 77%, ENs at 18% and qualified NSPCWs at 5%. The average annual increase in workforce size over the period for each category of workers is 4.3% (in line with projected population growth with PAPF applied, and the average annual improvement in staffing levels of 1.5%). This 4.3% annual average increase is 9,698 additional RNs, 2,210 additional ENs, 631 additional qualified NSPCWs, and 12,539 additions to the total qualified nursing workforce.
- **Scenario 8:** NSPCWs' share of the total qualified nursing workforce increases to 10% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.5%. Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 73%, and that of ENs falls from 18% to 17%, while that of qualified NSPCWs increases from 5% to 10%. The average annual increase in the total qualified workforce is again 4.3% (12,539), but RNs and ENs both increase by only 3.6% (8,003 and 1,823 respectively), while NSPCWs increase by 18.5% (2,713) each year.
- **Scenario 9:** NSPCWs' share of the total qualified nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.5%. Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 77% to 57%, and that of ENs falls from 18% to 13%, while that of qualified NSPCWs increases from 5% to 30%. The average annual increase in the total qualified workforce is again 4.3% (12,539), but RNs and ENs both increase by only 0.5% (1,220 and 278 respectively), while NSPCWs increase by 75.4% (11,041) each year.

The largest increases over the ten years, 2010 to 2020, for each category of qualified nursing workers are:

- RNs: Scenario 7, an increase of 43%, or 96,983.
- ENs: Scenario 7, an increase of 43% or 22,097.
- Qualified NSPCWs: Scenario 9, an increase of 754% (more than seven-fold) or 110,409.
- Total qualified nursing workforce: Scenarios 7, 8 and 9, an increase of 43% or 125,390.

Scenario 3 involves a decrease in the total numbers of RNs and ENs over the period.

Scenarios involving all unlicensed nursing workers

For comparison purposes, scenarios have also been developed for the total NSPCW workforce, irrespective of qualification. The number of all NSPCWs in 2010 is estimated to be 81,248, derived from the number of NSPCWs according to ABS Labour Force 2009 (77,000), projected forward using the same method used for other categories of nursing workers: ABS population projections and population age profile factor (PAPF).

Scenarios 2, 5, and 8 are not included because they involve NSPCWs increasing share of total nursing workforce to 10% by 2020, but this is not appropriate for *all* NSPCWs because their 23% share in the base year of 2010 is much greater than 10%.

TABLE IV. Scenarios to 2020 involving changes in ALL unlicensed nursing workers' shares of the total nursing workforce and changes in total nursing staffing levels

	RNs	ENs	NSPCWs (all)	Total nursing workforce	RNs as % of total nursing workforce	ENs as % of total nursing workforce	NSPCWs (all) as % of total nursing workforce
2010	225,074	51,279	81,248	357,601	63%	14%	23%
2020 Scenario 1	277,506	63,225	100,175	440,906	63%	14%	23%
2020 Scenario 3	251,365	57,269	132,272	440,906	57%	13%	30%
2020 Scenario 4	312,664	71,235	112,866	496,765	63%	14%	23%
2020 Scenario 6	283,211	64,525	149,030	496,765	57%	13%	30%
2020 Scenario 7	322,057	73,376	116,257	511,690	63%	14%	23%
2020 Scenario 9	291,719	66,464	153,507	511,690	57%	13%	30%

Notes: Scenarios 2, 5, and 8 are not included because they involve NSPCWs increasing share of total nursing workforce to 10%, yet all NSPCWs' share is 23% in the base year of 2010. Other matters as for TABLE II

TABLE V. Average annual increase in workforce size, 2010 to 2020

	RNs		ENs		NSPCWs (all)		Total nursing workforce	
	Number	%	Number	%	Number	%	Number	%
2020 Scenario 1	5,243	2.3%	1,195	2.3%	1,893	2.3%	8,331	2.3%
2020 Scenario 3	2,629	1.2%	599	1.2%	5,102	6.3%	8,331	2.3%
2020 Scenario 4	8,759	3.9%	1,996	3.9%	3,162	3.9%	13,916	3.9%
2020 Scenario 6	5,814	2.6%	1,325	2.6%	6,778	8.3%	13,916	3.9%
2020 Scenario 7	9,698	4.3%	2,210	4.3%	3,501	4.3%	15,409	4.3%
2020 Scenario 9	6,665	3.0%	1,518	3.0%	7,226	8.9%	15,409	4.3%

Notes: As for TABLE II

The outcomes for the different categories of the total nursing workers for the six of the nine Table I scenarios are set out in Tables IV and V, and can be summarised as follows:

- **Scenario 1:** No change in NSPCWs' share of the total nursing workforce and no change in staffing levels. Between 2010 and 2020 there is no change in the share of the total qualified nursing workforce: RNs remain at 63%, ENs at 14% and qualified NSPCWs at 23%. The average annual increase in workforce size over the period for each category of workers is 2.3% (in line with projected population growth with PAPP applied). This 2.3% annual average increase is 5,243 additional RNs, 1,195 additional ENs, 1,893 additional NSPCWs, and 8,331 additions to the total nursing workforce each year.

- **Scenario 3:** NSPCWs' share of the total nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and no change in staffing levels. Between 2010 and 2020 RNs' share of the total nursing workforce falls from 63% to 57%, and that of ENs falls from 14% to 13%, while that of NSPCWs increases from 23% to 30%. The average annual increase in the total nursing workforce is again 2.3% (8,331): the numbers of RNs and ENs both increase by 1.2% (2,629 and 599 respectively), while NSPCWs increase by 6.3% (5,102) each year.
- **Scenario 4:** No change in NSPCWs' share of the total nursing workforce, and an average annual improvement in staffing levels of 1.2%. Between 2010 and 2020 there is no change in the share of the total nursing workforce: RNs remain at 63%, ENs at 14% and NSPCWs at 23%. The average annual increase in workforce size over the period for each category of workers is 3.9% (in line with projected population growth with PAPF applied, and the average annual improvement in staffing levels of 1.2%). This 3.9% annual average increase is 8,759 additional RNs, 1,996 additional ENs, 3,162 additional NSPCWs, and 13,916 additions to the total nursing workforce.
- **Scenario 6:** NSPCWs' share of the total nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.2%. Between 2010 and 2020 RNs' share of the total qualified nursing workforce falls from 63% to 57%, and that of ENs falls from 14% to 13%, while that of NSPCWs increases from 23% to 30%. The average annual increase in the total nursing workforce is again 3.9% (13,916), but RNs and ENs both increase by only 2.6% (5,814 and 1,325 respectively), while NSPCWs increase by 8.3% (6,778) each year.
- **Scenario 7:** No change in NSPCWs' share of the total nursing workforce, and an average annual improvement in staffing levels of 1.5%. Between 2010 and 2020 there is no change in the share of the total nursing workforce: RNs remain at 63%, ENs at 14% and NSPCWs at 23%. The average annual increase in workforce size over the period for each category of workers is 4.3% (in line with projected population growth with PAPF applied, and the average annual improvement in staffing levels of 1.5%). This 4.3% annual average increase is 9,698 additional RNs, 2,210 additional ENs, 3,501 additional NSPCWs, and 15,409 additions to the total nursing workforce.
- **Scenario 9:** NSPCWs' share of the total nursing workforce increases to 30% by 2020 (the shares of RNs and ENs adjust proportionately), and an average annual improvement in staffing levels of 1.5%. Between 2010 and 2020 RNs' share of the total nursing workforce falls from 63% to 57%, and that of ENs falls from 14% to 13%, while that of NSPCWs increases from 23% to 30%. The average annual increase in the total nursing workforce is again 4.3% (15,409), but RNs and ENs both increase by only 3.0% (6,665 and 1,518 respectively), while NSPCWs increase by 8.9% (7,226) each year.

The largest increases over the ten years, 2010 to 2020, for each category of nursing workers are:

- RNs: Scenario 7, an increase of 43%, or 96,983.
- ENs: Scenario 7, an increase of 43% or 22,097.
- NSPCWs: Scenario 9, an increase of 89% or 72,259.
- Total qualified nursing workforce: Scenarios 7 and 9, an increase of 43% or 154,089.

Discussion and conclusion

The analysis in this addendum is limited by the apparently poor quality of the data on unlicensed nursing workers. Unlicensed nursing workers are defined as those in the ABS category of Nursing Support and Personal Care Workers (NSPCW). For the policy purposes which this work is intended to inform, whether or not those workers have a qualification in Nursing is a relevant matter. Available data concerns those with a *highest post school qualification in Nursing*, and this data is likely to undercount because some may have a qualification in Nursing and a higher qualification in another field (which may be a relevant health-related field not classified as Nursing), and because others may not accurately report relevant qualifications.

According to the available data, only 18% of NSPCWs have a highest post school qualification in Nursing. Thus, NSPCWs with such a nursing qualification are just 5% of the total qualified nursing workforce. In contrast NSPCWs, irrespective of qualification, make up 23% of the nursing workforce defined as all NSPCWs, RNs and ENs.

Depending on purpose, and on judgement regarding the quality of the data, either sets of scenarios above could be referred to, or reference could be made to a point on the continuum between the outcomes of a relevant scenario in each set. For example, if the interest is in scenario 9 (increasing NSPCWs' share to 30% and an annual improvement in staffing levels of 1.5% a year), then the bottom row in Table III can be treated as a minimum for RNs, ENs and the total nursing workforce, and a maximum for NSPCWs, and the bottom row in Table V can be treated as a maximum for RNs, ENs and the total nursing workforce, and a minimum for NSPCWs.